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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/890,145	07/26/2001	Takeshi Suzuki	56937-027	7821

20277 7590 08/28/2002

MCDERMOTT WILL & EMERY  
600 13TH STREET, N.W.  
WASHINGTON, DC 20005-3096

EXAMINER

NORRIS, JEREMY C

ART UNIT	PAPER NUMBER
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2827

DATE MAILED: 08/28/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/890,145

Applicant(s)

SUZUKI ET AL.

Examiner

Jeremy Norris

Art Unit

2827

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 26 July 2001.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 11-13 is/are allowed.
- 6) ☒ Claim(s) 1, 4-7, 14 and 24-28 is/are rejected.
- 7) ☒ Claim(s) 2, 3, 8-10 and 15-23 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 June 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All   b) ☐ Some \*   c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

## DETAILED ACTION

### *Specification*

Applicant is reminded of the proper content of an abstract of the disclosure.

A patent abstract is a concise statement of the technical disclosure of the patent and should include that which is new in the art to which the invention pertains. If the patent is of a basic nature, the entire technical disclosure may be new in the art, and the abstract should be directed to the entire disclosure. If the patent is in the nature of an improvement in an old apparatus, process, product, or composition, the abstract should include the technical disclosure of the improvement. In certain patents, particularly those for compounds and compositions, wherein the process for making and/or the use thereof are not obvious, the abstract should set forth a process for making and/or use thereof. If the new technical disclosure involves modifications or alternatives, the abstract should mention by way of example the preferred modification or alternative.

The abstract should not refer to purported merits or speculative applications of the invention and should not compare the invention with the prior art.

Where applicable, the abstract should include the following:

- (1) if a machine or apparatus, its organization and operation;
- (2) if an article, its method of making;
- (3) if a chemical compound, its identity and use;
- (4) if a mixture, its ingredients;
- (5) if a process, the steps.

Extensive mechanical and design details of apparatus should not be given.

Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

The abstract of the disclosure is objected to because of the length and the use of the phrase "The present invention aims to provide". Correction is required. See MPEP § 608.01(b).

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 25-28 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 25-28 all recite the limitation "said metal conductors". There is insufficient antecedent basis for this limitation in the claims.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

Claims 1, 4-7, 14 and 24 are rejected under 35 U.S.C. 102(e) as being anticipated by US 6,143,116, granted to Hayashi et al. (hereafter Hayashi).

Hayashi discloses referring to figure 1, a wiring substrate comprising: two or more wiring layers (2); insulation layers (1) interposed between said neighboring wiring layers and containing an organic resin (see col. 5, lines 30-40); and via (3) formed in the insulation layers as to connect said wiring layers one another, wherein said via is characterized in containing a plurality of functional substances (metal powder, see col. 8, lines 40-55) while keeping voids in the surroundings (see col. 10, lines 60-end), and wherein the voids include first voids where at least the organic resins from the insulation layers exist and second voids where a gas exists (see Table 6, examples 5-12) [claim 1], characterized in that said functional substances are one or more conductive fillers (see col. 8, lines 40-55), and that said insulation layers are made of composite materials of organic or inorganic woven cloth impregnated with said organic resins or composite materials of organic or inorganic non-woven cloth impregnated with the organic resins (see col. 5, lines 30-40) [claim 4], characterized in that said functional substances are one or more conductive fillers, and that said insulation layers are made of composite materials containing organic or inorganic fillers and said organic resins [claim 5].

Additionally Hayashi discloses, a wiring substrate comprising: two or more wiring layers (2); insulation layers (1) interposed between said neighboring wiring layers; and via (3) formed in the insulation layers as to connect said wiring layers one another, wherein said insulation layers comprise films and adhesive layers containing adhesives

(epoxy resin, see col. 5, 25-40) and formed at least one side, and wherein said via contain functional substances (metal powder, see col. 8, lines 40-55) and the adhesives of said adhesive layers penetrating and existing in the voids in the surroundings of the functional substances (see col. 10, lines 60-end) [claims 6, 14], characterized in that said voids include first voids where at least said adhesive exist and second voids where a gas exists (see Table 6, examples 5-12) [claim 7], characterized in that the voids in via are penetrated with the adhesive by applying pressure to an insulation substrate in the thickness direction by metal conductors disposed in both sides of the insulation substrate (see col. 10, lines 60-65) [claim 24], characterized in that said metal conductors are either metal foils or wiring patterns [claim 28].

***Allowable Subject Matter***

Claims 11-13 are allowed.

Claims 2, 3, 8-10 and 15-23 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 25-27 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

Claims 2 and 8 state the limitation "said second voids are selectively formed in the portions where the agglomerated functional substances exist". Though this is a process limitation in a product claim, it does impart certain structural limitations. In the prior art

of Hayashi cited above, the voids are randomly formed. However, in the instantly claimed invention of claims 2 and 8, the voids are *selectively* formed, that is, formed at predetermined locations as opposed to random locales. Therefore, it is deemed that this limitation, in conjunction with the other claimed limitations was neither found to be disclosed in, nor suggested by the prior art. Similarly, claim 11 states the limitation "a first process of forming via in which voids are formed by filling functional substances in via holes formed in an insulation substrate containing an organic resin and removing at least some of the functional substances". This limitation, in conjunction with the other claimed limitations was neither found to be disclosed in, nor suggested by the prior art. Also, claim 15 in a similar fashion states the limitation "that said voids are selectively penetrated with said adhesive in said second process". This limitation, in conjunction with the other claimed limitations was neither found to be disclosed in, nor suggested by the prior art.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US 5,435,480	Hart et al.,
US 5,624,741	Scott,
US 6,103,359	Doi,
US 6,109,507	Yagi et al.,
US 6,346,317	Ritland et al.

Application/Control Number: 09/890,145  
Art Unit: 2827

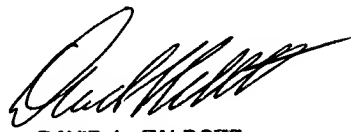
Page 7

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeremy Norris whose telephone number is 703-306-5737. The examiner can normally be reached on Mon.-Th., 9AM - 6:30 PM and alt. Fri. 9AM-5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L. Talbott can be reached on 703-305-9883. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-7724 for regular communications and 703-305-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

JCSN  
August 25, 2002

  
DAVID L. TALBOTT  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800